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FUNCTIONAL ANALYSIS AND TREATMENT OF EYE POKING WITH RESPONSE BLOCKING

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A functional analysis of eye poking by a 4-year-old female with severe disabilities and visual impairments showed that high rates occurred in all conditions. We conducted a series of probes to identify the maintaining variable for eye poking following an undifferentiated functional analysis. Results showed that eye poking decreased only when we interrupted finger-eye contact by blocking the response.
DESCRIPTORS: eye poking, functional analysis, response blocking

Functional analyses enable therapists to develop interventions for problem behavior based on its function, thus increasing the probability of effective treatment. When findings from functional analyses are inconclusive, one can conduct further probes to identify the function directly or to infer the source of reinforcement indirectly from the treatment's effect (Kennedy & Souza, 1995). The purpose of this study was to identify the source of reinforcement for a participant's eye poking following an undifferentiated functional analysis. The order of conditions was based on inconclusive results in the preceding phase.

METHOD

Participant and Setting

Mary was 4 years old and had severe developmental disabilities and visual impairments that required the use of prescription glasses. When she was admitted to a hospital unit for treatment of severe behavior problems, she was wearing arm splints throughout the day except during meals and bathing. All sessions were conducted in a room (4.5 m by 6.0 m).

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Dependent Measure and Data Collection

Eye poking was defined as Mary placing a finger into her eye or onto her glasses. Observers used a computerized data-collection procedure to record each occurrence or attempt at eye poking and to calculate interobserver agreement (Repp, Harman, Felce, VanAcker, & Karsh, 1989). Interobserver agreement was collected on an average of 28% of the sessions, equally distributed across conditions. Occurrence agreement was 91% (range, 84% to 100%). Sessions lasted 10 min, with four to five sessions conducted daily.

Procedures and Designs

Functional analysis. Functional analysis conditions (Iwata, Dorsey, Slifer, Bauman, & Richman, 1982/1994) were evaluated in a multielement design. In the attention condition, the therapist provided a disapproving comment and removed Mary's hand from her eye contingent on eye poking. During tasks (self-care), the therapist provided a request every 30 s and stopped instructions

contingent on eye poking. The therapist provided access to a toy contingent on eye poking in the tangible condition. During play, Mary had noncontingent access to her toys (busy box, top); the therapist provided attention on a fixed-time (FT) 30-s schedule and did not respond to eye poking. In the alone condition, Mary was observed without adults or toys present. The multielement evaluation was followed by additional 30-min alone and play sessions to observe eye poking under extended conditions of low stimulation and noncontingent reinforcement.

Sensory stimulation. The objective of this phase was to test sensory stimulation as a potential source of reinforcement. We used a multielement design to observe the effects of noncontingent visual (e.g., light-up toys), auditory (e.g., music), or tactile (e.g., clay) stimulation on eye poking. Mary's mother had identified these objects as being preferred. During these sessions, Mary had noncontingent access to one of the toys; the therapist provided attention on an FT 30-s schedule and did not respond to eye poking.

Social reinforcement. The objective of this phase was to test social stimulation as a potential source of reinforcement within a multielement design. A preference assessment had identified physical contact (arms around waist for 10 s) as preferred (Green, Reid, Canipe, & Gardner, 1991), and we evaluated the effects of physical contact via differential reinforcement of other behavior (a 10-s DRO). As a contrast condition, differential reinforcement of an incompatible response (a fixed-interval [FI] 10-s DRI schedule for toy play) was included in the analysis. During these sessions, Mary had noncontingent access to her toys; the therapist provided physical contact according to either the DRO or DRI schedule, provided attention on an FT 30-s schedule, and did not respond to eye poking.

Response blocking. The objective of this phase was to test if eye poking was maintained by consequences produced directly by finger-eye contact. We evaluated the effects of blocking the response (hand over hand) during the functional analysis play condition within a reversal (play, block, play, block) design.

Alone and play with goggles. The objective of this phase was to identify an alternative, more efficient method of blocking eye poking within a multielement design. We evaluated the effects of goggles on eye poking during both the alone and play conditions from the functional analysis. We shaped wearing the goggles by providing edible items (dry cereal) on a gradually increasing FI schedule (from 15 s to 900 s across sessions). The shaping procedure was completed before this experimental phase, and edible items were then discontinued. The therapist placed the goggles on Mary for 5 min before all sessions to allow for adjustment (see Kennedy & Souza, 1995, for a description of the safety goggles and how they were worn). We initially used safety goggles to provide maximum eye protection. Following the multielement evaluation, we cut out the sides of the goggles, then used swimming goggles, and finally used Mary's prescription glasses. The objective of these changes was to have Mary gradually tolerate wearing the standard glasses that she had previously refused to wear.

Attention with glasses. We probed the use of glasses on eye poking during two attention conditions (with and without glasses) from the functional analysis.

RESULTS AND DISCUSSION

The functional analysis showed high rates of eye poking across conditions, and eye poking persisted in the additional play and alone conditions (Figure 1). This undifferentiated pattern of responding suggested that eye poking was not maintained by so-

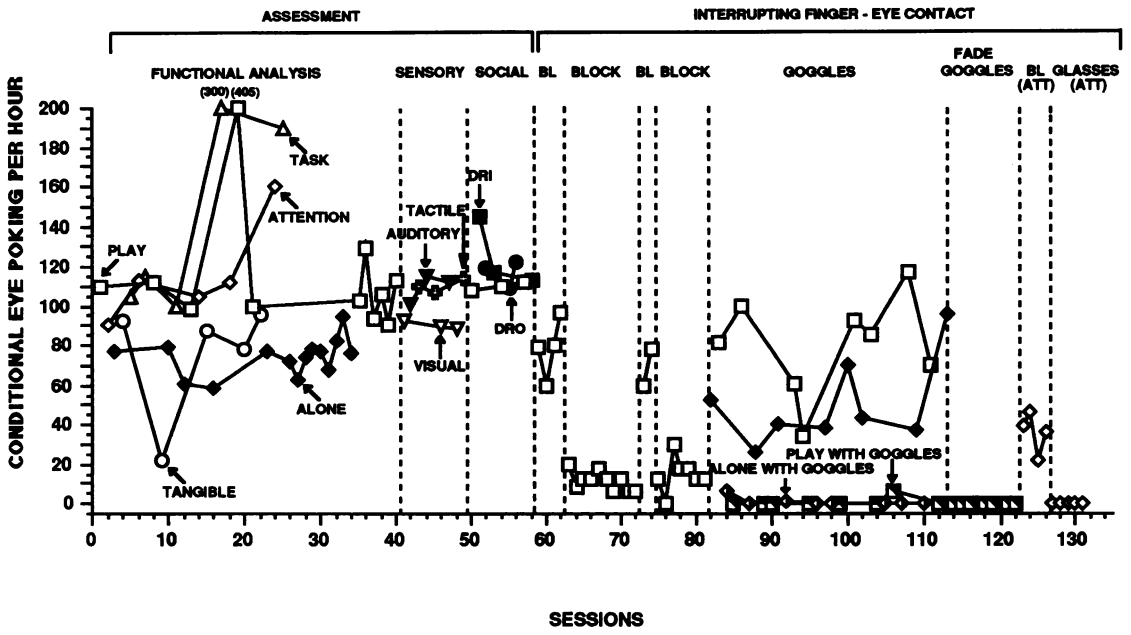

Figure 1. The number of eye pokes per hour across conditions during the functional analysis, the sensory and social reinforcement probes, response blocking (i.e., block), and the evaluation of goggles and glasses. BL refers to baseline, and ATT refers to the attention condition from the functional analysis.

cially mediated consequences. Results from the sensory stimulation phase showed high rates of eye poking, ranging from an average of 100 per hour (tactile) to 89.5 per hour (visual). These findings suggested that these modalities of sensory stimulation were not maintaining variables for eye poking. We then tested a social reinforcement hypothesis using either a DRO (M = 117 per hour) or a DRI (M = 125 per hour) procedure. Neither produced a reduction in eye poking compared to a concurrent baseline (M = 110 per hour). Next, we evaluated the effects of blocking the response during play conditions and observed reductions in the rate of eye poking (M = 12.6 per hour) compared to baseline (M = 76 per hour). These findings suggested that the maintaining variable for eye poking resulted from finger-eye contact.

Although this procedure reduced rates of eye poking, it required the constant presence of an adult for its use. Therefore, we evaluated the effects of wearing safety goggles on eye poking. Eye poking averaged 50.3 per hour and 80 per hour in the alone and play conditions without goggles, respectively. In contrast, eye poking averaged less than one per hour in the alone and play conditions with goggles. Eye poking did not occur during the change from safety goggles to prescription glasses. During attention conditions, eye poking averaged 35.7 per hour and zero per hour in baseline and treatment, respectively. These results showed that the treatment generalized across conditions. Following the attention with glasses phase, we evaluated the independent effects of blocking eye poking and glasses during play conditions with Mary's mother. Results showed that eye poking decreased from an average of 93 per hour in baseline to three per hour with blocking and 126 per hour in baseline to zero per hour with glasses (data are not graphically presented).

The present study involved a series of analyses to identify the maintaining variable for eye poking following an undifferentiated

functional analysis. The functional analysis and subsequent probes showed that eye poking occurred in all conditions, suggesting that eye poking may be maintained by a consequence produced by the response itself. Interrupting finger-eye contact (blocking, goggles) rapidly reduced rates of eye poking, further suggesting that the reinforcement produced by finger-eye contact maintained Mary's eye poking. This procedure differs from sensory extinction because blocking eye poking prevents the response cycle from being completed. That is, interrupting the response cycle precludes the occurrence of the maintaining environmental event. In contrast, with extinction the response occurs, but it no longer produces the maintaining environmental event. These findings support previous research of Kennedy and Souza (1995) indicating that the optical stimulation produced by applying pressure to the eyeball may be a potential source of reinforcement for eye poking.

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